

Title (en)
SELF-SUPERVISED TRAINING OF A DEPTH ESTIMATION SYSTEM

Title (de)
SELBSTÜBERWACHTES TRAINING EINES TIEFENSCHÄTZUNGSSYSTEMS

Title (fr)
FORMATION AUTO-SUPERVISÉ D'UN SYSTÈME D'ESTIMATION DE PROFONDEUR

Publication
EP 3794555 A4 20210609 (EN)

Application
EP 19802580 A 20190516

Priority

- US 201862673045 P 20180517
- US 2019032616 W 20190516

Abstract (en)
[origin: US2019356905A1] A method for training a depth estimation model and methods for use thereof are described. Images are acquired and input into a depth model to extract a depth map for each of the plurality of images based on parameters of the depth model. The method includes inputting the images into a pose decoder to extract a pose for each image. The method includes generating a plurality of synthetic frames based on the depth map and the pose for each image. The method includes calculating a loss value with an input scale occlusion and motion aware loss function based on a comparison of the synthetic frames and the images. The method includes adjusting the plurality of parameters of the depth model based on the loss value. The trained model can receive an image of a scene and generate a depth map of the scene according to the image.

IPC 8 full level
G06T 7/593 (2017.01); **G06T 7/579** (2017.01); **G06T 7/73** (2017.01)

CPC (source: EP KR US)
G06T 7/30 (2017.01 - KR); **G06T 7/579** (2017.01 - EP US); **G06T 7/593** (2017.01 - KR US); **G06T 7/73** (2017.01 - EP US); **G06T 7/97** (2017.01 - KR); **H04N 13/271** (2018.05 - US); **G06T 2207/10016** (2013.01 - EP KR US); **G06T 2207/10028** (2013.01 - KR US); **G06T 2207/20081** (2013.01 - EP US); **G06T 2207/20084** (2013.01 - EP); **G06T 2207/30244** (2013.01 - EP); **H04N 13/239** (2018.05 - EP); **H04N 2013/0081** (2013.01 - EP US); **H04N 2013/0088** (2013.01 - US)

Citation (search report)

- [X1] ZHOU TINGHUI ET AL: "Unsupervised Learning of Depth and Ego-Motion from Video", 2017 IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION (CVPR), IEEE COMPUTER SOCIETY, US, 21 July 2017 (2017-07-21), pages 6612 - 6619, XP033250026, ISSN: 1063-6919, [retrieved on 20171106], DOI: 10.1109/CVPR.2017.700
- [A] XIE JUNYUAN ET AL: "Deep3D: Fully Automatic 2D-to-3D Video Conversion with Deep Convolutional Neural Networks", 17 September 2016, FOUNDATIONS OF AUGMENTED COGNITION : 7TH INTERNATIONAL CONFERENCE, AC 2013, HELD AS PART OF HCI INTERNATIONAL 2013, LAS VEGAS, NV, USA, JULY 21-26, 2013 ; PROCEEDINGS; [LECTURE NOTES IN COMPUTER SCIENCE; LECT.NOTES COMPUTER], SPRINGER, CHAM, PAGE(S), ISBN: 978-3-030-71592-2, XP047566002
- [A] BENJAMIN UMMENHOFER ET AL: "DeMoN: Depth and Motion Network for Learning Monocular Stereo", ARXIV.ORG, CORNELL UNIVERSITY LIBRARY, 201 OLIN LIBRARY CORNELL UNIVERSITY ITHACA, NY 14853, 7 December 2016 (2016-12-07), XP081363222, DOI: 10.1109/CVPR.2017.596
- See also references of WO 2019222467A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
US 11082681 B2 20210803; **US 2019356905 A1 20191121**; AU 2019270095 A1 20210114; AU 2019270095 B2 20240627; CA 3100640 A1 20191121; CA 3100640 C 20230418; CN 112534475 A 20210319; CN 112534475 B 20230110; EP 3794555 A1 20210324; EP 3794555 A4 20210609; EP 3794555 B1 20240313; JP 2021526680 A 20211007; JP 7241775 B2 20230317; KR 102506959 B1 20230307; KR 20200146040 A 20201231; TW 202004670 A 20200116; TW I790380 B 20230121; US 11991342 B2 20240521; US 2021314550 A1 20211007; WO 2019222467 A1 20191121; WO 2019222467 A8 20200326

DOCDB simple family (application)
US 201916413907 A 20190516; AU 2019270095 A 20190516; CA 3100640 A 20190516; CN 201980047649 A 20190516; EP 19802580 A 20190516; JP 2020564565 A 20190516; KR 20207036300 A 20190516; TW 108117215 A 20190517; US 2019032616 W 20190516; US 202117354517 A 20210622